



Lactate, N-acetylaspartate, choline and creatine concentrations, and spin-spin relaxation in thalamic and occipito-parietal regions of developing human brain

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Résumé en anglais	<p>Previous studies of the brains of normal infants demonstrated lower lactate (Lac)/choline (Cho), Lac/creatine (Cr), and Lac/ N-acetylaspartate (Naa) peak-area ratios in the thalamic region (predominantly gray matter) compared with occipitoparietal (mainly unmyelinated white matter) values. In the present study, thalamic Cho, Cr, and Naa concentrations between 32-42 weeks' gestational plus postnatal age were greater than occipito-parietal: 4.6 +/- 0.8 (mean +/- SE), 10.5 +/- 2.0, and 9.0 +/- 0.7 versus 1.8 +/- 0.6, 5.8 +/- 1.5, and 3.4 +/- 1.1 mmol/kg wet weight, respectively: Lac concentrations were similar, 2.7 +/- 0.6 and 3.3 +/- 1.3 mmol/kg wet weight, respectively. In the thalamic region, Cho and Naa T2s increased, and Cho and Lac concentrations decreased, during development. Lower thalamic Lac peak-area ratios are principally due to higher thalamic concentrations of Cho, Cr, and Naa rather than less Lac. The high thalamic Cho concentration may relate to active myelination; the high thalamic Naa concentration may be due to advanced gray-matter development including active myelination. Lac concentration is higher in neonatal than in adult brain.</p>
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Liens

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